

CLAIMS (29873)

What is claimed is:

1. A method of interpolation for a complementary-color-filtered array image, comprising the steps of:

(a) provide a complementary-color-filtered array of pixel values with yellow pixel values Y_e on a first subarray, cyan pixel values C_y on a second subarray, magenta pixel values M_g on a third subarray, and green pixel values G on a fourth subarray;

(b) interpolating the subarray of yellow pixel values to form a yellow array;

(c) interpolating the subarray of cyan pixel values to form a cyan array;

(d) interpolating the subarray of magenta pixel values to form a magenta array;

(e) interpolating the subarray of green pixel values to form a green array;

(f) adjusting the color values for each pixel by

(i) subtracting a quantity $(Y_e + C_y - 2 \cdot G - M_g)/4$ from Y_e to generate the pixel's adjusted yellow value where Y_e is the pixel's yellow value from step (b), C_y is the pixel's cyan value from step (c), M_g is the pixel's magenta value from step (d), and G is the pixel's green value from step (e);

(ii) subtracting the quantity $(Y_e + C_y - 2 \cdot G - M_g)/4$ from C_y to generate the pixel's adjusted cyan value;

(iii) adding the quantity $(Y_e + C_y - 2 \cdot G - M_g)/4$ to M_g to generate the pixel's adjusted magenta value; and

(iv) adding the quantity $(Y_e + C_y - 2 \cdot G - M_g)/8$ to G to generate the pixel's adjusted green value.

2. A method of interpolated complementary-color-filtered array image processing, comprising the steps of:

(a) provide an interpolated complementary-color-filtered array of pixel values with a pixel's yellow value denoted Y_e , cyan value denoted C_y , magenta value denoted M_g , and green value denoted G ;

(b) adjusting the color values for each pixel by

(i) subtracting a quantity $(Y_e + C_y - 2 \cdot G - M_g)/4$ from Y_e to generate the pixel's adjusted yellow value;

(ii) subtracting the quantity $(Y_e + C_y - 2 \cdot G - M_g)/4$ from C_y to generate the pixel's adjusted cyan value;

(iii) adding the quantity $(Y_e + C_y - 2 \cdot G - M_g)/4$ to M_g to generate the pixel's adjusted magenta value; and

(iv) adding the quantity $(Y_e + C_y - 2 \cdot G - M_g)/8$ to G to generate the pixel's adjusted green value.

3. An interpolator for complementary-color-filtered array image, comprising

(a) an interpolator for the color subarrays of a complementary-color-filtered array;

(b) a filter coupled to the output of the interpolator to adjust the interpolated colors at each pixel by adjusting with an imbalance factor for the pixel.